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| ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873 | | | KUMAR, RAKESH | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3654 | |

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/772,386

Applicant(s)

TAMAMOTO, JUNICHI

Examiner

Rakesh Kumar

Art Unit

3654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 02/06/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Referring to claim 8, 9 and 10. Claim 8, 9 and 10 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
2. In Claim 8, line 6 it is unclear as to what is meant by the description "first and the second sheet press members," in the specification and the drawings there is no reference to the member being disclosed. It is understood and broadly construed to mean driven roller members 24b and 25b, as they are members that act as a pressing member on the transfer sheet and act in an opposing manner to the sheet transfer members 24a and 25a.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 3654

3. Claim 1-3, 11 and 14 rejected under 35 U.S.C. 102(b) as being anticipated by Stromme et al. (U.S. Patent Number 6,311,819).

4. Referring to claim 1. Stromme et al. discloses an apparatus for handling sheets 10, comprising a sheet transfer member 223 being movable, and having a transfer surface that is contactable with one of the sheets 20 so that the sheet 20 is transferred by the sheet transfer member 223 (Figure 4, Col. 5 lines 49-60). Stromme et al. teaches of a sheet supporting surface area 211 being contactable with one of the sheets 20 transferred by the sheet transfer member 223 (Col. 5 lines 23-30). Information reading sensors are arranged in the evaluation region 247 to face one of the sheets 20 transferred by the sheet transfer member 223. The sensors in the evaluation region 247 securely read information in their information reading range as the sheet 20 proceeds through the information reading point (Col. 5 line 59, Col. 6 line 37, Col. 13 lines 50-60).

5. Referring to claims 2 and 3. Stromme et al. discloses an apparatus for handling sheets 10, which consists of a sheet supporting surface 211, 240 area extending to be contactable with a sheet 20 between the transfer surface and the information reading point in the evaluation region 247 (Figure 4, Col. 4 line 49). The sheet supporting surface 211, 240 extends and guides the sheet 20 to the information evaluation region 247 by the means of the sheet transfer members 223 and 241.

6. Referring to claim 11. Stromme et al. discloses the sheet transfer member 223, 241 and the sheet pressing members 250, 251 are rollers disposed on a rotational axis (Figure 4).

7. Referring to claim 14. Stromme et al. discloses using various types of sensors in the evaluation region 247 depending on the particular application and need of the device (Col. 13 line 50). Stromme et al. also teaches of using a pair of input sensors disposed in an opposed manner such that, the input face of the respective sides of the sheet can be detected by the sensors placed on each side (Col. 14 line 52, not shown in drawing).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 4, 5, 6 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Stromme et al. (U.S. Patent Number 6,311,819) in view of Keller (U.S. Patent Number 4,015,703).

9. Referring to claims 4, 5 and 6. Stromme et al. discloses an apparatus for handling sheets 10, transferring sheets 10 by the means of a sheet transfer member 223. The sheets are ejected into the evaluation region 247 in a tangential line, after leaving the boundary point (nip point between the member 223 and 250) of the transfer surface on the transfer member 223 from which the sheet 10 starts to separate away from the transfer surface in a straight line above the guide member 240 and passing through the information evaluation region 247.

Stromme et al. does not discloses of the sheet 10 separating away from the path of an imaginary straight line passing through the information reading point.

Keller discloses a sheet material transport system with the ability to vary the input feeding and output angles of the media sheet B. The sheet B is ejected by the sheet transfer member 3 at a boundary point 7 in a straight tangential line path 17 intersecting the sheet guides 22. As the sheet B proceeds on the tangential line path 17, it begins to separate away from the tangential path into the sensor detection area enclosed by the guide members 22 (Figure 2, enlarged view). The tangential line 17 is prevented from extending parallel to the imaginary straight line 8.

It would have been obvious to one of ordinary skill in the art at the time the invention was made, to control the interior ejection angle such that the sheet could be bent or driven in a particular direction to allow for the sheet to be positioned in a location that maximizes the ability to detect the required sheet properties by the sensors in the detection region. As a result more accurate information reading can be obtained by controlling the position of the sheet with respect to the detection devices.

10. Referring to claim 13. Regarding claim 13, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Stromme et al. and dispose a blower 10 in the detection region as taught by Keller. Keller teaches the addition of a blower 10 applying a pneumatic pressure to the sheet in a manner to urge the sheet by pneumatic pressure toward the sheet supporting guides 22 (Figure 4, Col 4. lines 50-60). By using a pneumatic blower the position of the sheet as it travels from a sheet transfer member is further controlled.

11. Claim 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Stromme et al. in view of Winkler (U.S. Patent Number 4,993,700).

12. Referring to claim 12. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize rotatable belts as the sheet transfer members in an annular course as taught by Winkler in Figure 1 member 32 and 50, such a selection would be well within the level of skill of an artisan.

13. Claims 7, 8, 9 and 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Stromme et al. as applied to claim 1 above, and further in view of Keller.

14. Referring to claim 7. See claim 4. Stromme et al. discloses a supplemental sheet transfer member 241 being movable and having a supplemental transfer surface

contactable with one of the sheets 20 so that the sheet 20 is transferred by the supplemental sheet transfer member 241. A tangential line of a boundary point (nip point between the member 223 and 250) of the transfer surface of the first sheet transfer member 223 where the sheet starts to separate away from the transfer surface of the sheet, runs through the boundary point (nip point between the member 241 and 251) of the supplemental sheet transfer member (Figure 4).

Stromme et al. does not disclose the tangential boundary point lines of the supplement sheet transfer member 241 and the sheet transfer member 223 as intersecting.

Keller discloses the two tangential boundary lines 17, 16' from each sheet transfer member 3, 3' to be intersecting in the sensor detection area in between the guides 22. Keller also teaches, sheet B at one of the boundary points 7, 6' starts out in the beginning to separate away from the supplemental sheet transfer member 3' and then starts to curve back to initiate contact with the supplemental sheet transfer member 3'.

It would have been obvious to one of ordinary skill in the art at the time the invention was made, to position the sheet in a location that maximizes the ability to detect the required sheet properties by the sensors and then curve the sheet back toward the supplemental sheet transfer member to continue moving through the information reading area. As a result, more accurate information reading can be obtained by controlling the position of the sheet with respect to the detection devices.

15. Referring to claim 8 and 9. See claim 4 and 7. Stromme et al. discloses a sheet transfer member 223 and a supplemental sheet transfer member 241 having transfer surfaces contactable with the one face of the sheet 20 to allow the sheet 20 to be transferred. In addition a first and a second sheet press members 250, 251 being opposed to the sheet transfer members 223, 241 in such a manner that one of the sheets 20 is allowed to be pressed between the sheet transfer member 223 and the sheet press member 250 in a first direction (toward the elevation region), and pressing a sheet 20 between the supplementary sheet transfer member 241 and the second press member 251 in a second direction (Figure 4).

Stromme et al. does not disclose the first and the second press directions intersecting with each other.

Keller discloses the embodiment as stated in previous claims with sheet transfer members 3,3' disposed in an opposing manner to the sheet pressing members 2,2' to press the sheets in a first and a second directions 17,16' that intersect with each other in a view direction and are perpendicular to the thickness direction 15,15' of the sheet at the boundary point 7, 6' as the sheet are transferred.

It would have been obvious to one of ordinary skill in the art at the time the invention was made, to dispose the sheet transfer members at an angle resulting in the ability to direct the sheets being ejected from the transfer members in a particular direction towards the detection region. As a result, sending the sheet to a particular location in the detection region with greater accuracy.

16. Referring to claim 15. See claim 8, 9 and 10. In regards to claim 15, Keller discloses a angle β (applicant uses α) as the inclination angle between the support line 9 direction and a tangential line 15 of a boundary point 7 of the transfer surface of the sheet transfer member from which the sheet starts to separate away from the transfer surface. In addition a D distance is clearly shown between the axis 13, 13' of the two sheet transfer members and as a result the distance from one boundary point 7 to the center of the information evaluation area is inherently D/2 between the to sheet transfer members. Keller also shows a separation distance between the two sheet supporting surface areas 22 that can be characterized by a variable as well. It is understood that the friction coefficient between one of the sheet and the transfer surface of the sheet transfer member will be based on the inherent material properties of the sheet and the surface of the roller in addition to the force that is applied to the roller to transfer the sheet, thus this interaction at the boundary point 7, 6' as shown by Keller can be derived as a single relationship. Keller also discloses a method of varying the boundary point sheet input angle by varying angle β' and α' (angles β and α have a similar configuration but not shown in drawings) by the means of the adjustable slots 26 and 27.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stromme et al. with the teachings as disclosed by Keller to incorporate a coefficient friction that exists between the sheet transfer surface and the sheet itself and deduce a range of effective α angles that can be used determine the maximum and minimum α without stalling the sheet transfer

members as the sheet is fed to the boundary point, such a selection would be well within the level of skill of an artisan.

17. Claim 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Stromme et al. and Keller as applied to claim 4 above, and further in view of Tschudin-Mahrer (U.S. Patent Number 4,837,064).

18. Referring to claim 10. See claim 8. In regards to claim 10, Tschudin-Mahrer discloses a roller member 1 composed of elastic material that molds around the body that it is in contact with as is shown in Figure 3.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Stromme et al. and Keller with the teaching of Tschudin-Mahrer and replace the sheet transfer members 223, 241 (Strommer) with a member composed of elastic material that deforms during contact with the sheet pressing members 250, 251. As the elastic material deforms during contact with the sheet pressing members the boundary point is moved further out away from the line perpendicular 15, 15' (Keller) to the thickness of the sheet, as a result of using elastic material for the sheet transfer member the contact area between the transfer member and the sheet is increased.

19. Claim 17-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Stromme et al. in view of Steiner (U.S. Patent Number 3,966,047).

20. Referring to claims 17-20. See claim 1. Stromme et al. discloses an apparatus for handling sheets 10, comprising of movable sheet transfer members 223 disposed on either sides of the information gathering region.

Stromme et al. does not discloses a supplemental sheet supporting surface member roller disposed in a movable manner with respect to the opposing sheet supporting surface area.

Steiner discloses a supplemental sheet supporting surface member 64 that is disposed in a curved path, in a movable manner, contactable with the sheets as they are transferred by the sheet transfer member 58. As the sheet moves toward the center of the sensor region, roller 64 engages the sheet and urges it forward to the supplemental sheet transfer member 92. In addition, the roller member 64 is also able to move in a perpendicular direction to the flow path of the sheet, engage and disengage the sheets they proceeds through the sensor region (Figure 1, Col 2 line 50-60).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stromme et al. and add an additional supplemental sheet supporting surface member 64 as taught by Steiner to provide a better grip of the sheet as the sheet proceeds through the sensor region.

21. Claim 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Stromme et al. in view of Fox et al. (U.S. Patent Number 5,486,063)

23. Referring to claim 16. Claim 16 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rakesh Kumar whose telephone number is (517) 272-8314. The examiner can normally be reached on 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathy Matecki can be reached on (571) 272-6951. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

22. Referring to claim 21. Stromme et al. discloses optical sensors comprising and emitter and receiver can be used to detect physical properties such as the reflectivity, optical transmission and other properties that that can be used to detect information as a sheet is transferred through the evaluation region 247 (Col. 13 line 56, Col. 14 line 45).

Stromme et al. does not disclose using a distance detector to detect the distance of the sheet from the position of the sensor optical sensor.

Fox et al. teaches of using a pair of sensors to detect the distance of the material as it pass beneath the evaluation region. Fox et al. also discloses the need to vary the intensity of the transmitted beam to compensate for the transmission of the beam absorption.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Stromme et al. with the teaching of Fox et al. and use a sensor mechanism that first detects the distance between an optical sensor and the position of the sheet and then in response vary the intensity of the beam transmitting sensor with the respect to the distance between the sheet and the optical sensor to obtain a more accurate information reading from the sheet.

Allowable Subject Matter

Art Unit: 3654

RK

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